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TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US)  
CONCERNING A FILING UNDER 35 U.S.C. 371

ATTORNEY'S DOCKET NUMBER: Kinoshita Case 209

U.S. APPLICATION NO.  
(If known, see 37 CFR 1.5): Unknown

INTERNATIONAL APPLICATION NO.: PCT/JP98/00080

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PRIORITY DATE CLAIMED: January 17, 1997

TITLE OF INVENTION: SKIN CONTACT GOODS

APPLICANTS FOR DO/EO/US: Satoshi MIKAMI, Masahiro SANO and Takaharu YASUE

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(l).
4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
  - a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
  - b. ☒ has been transmitted by the International Bureau.
  - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
  - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
  - b. ☐ have been transmitted by the International Bureau.
  - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
  - d. ☐ have not been made and will not be made.
8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

**Items 11. to 16. below concern document(s) or information included:**

11. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☒ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☐ A **FIRST** preliminary amendment.  
☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
14. ☐ A substitute specification.
15. ☐ A change of power of attorney and/or address letter.
16. ☒ Other items or information:
  - Formal Drawings (1 page)
  - Form PCT/IB/301 (1 page)
  - Title Page of WIPO Document WO98/31868 (1 page)
  - Form PCT/ISA/210 - International Search Report (2 pages)

U.S. APPLICATION NO.  
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Kinoshita Case 209

09/341328

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17. [X] The following fees are submitted:

CALCULATIONS PTO USE ONLY

**BASIC NATIONAL FEE (37 CFR 1.492(a)(1)-(5)):**

Search Report has been prepared by the EPO or JPO..... \$ 840.00

International preliminary examination fee paid to USPTO (37 CFR 1.482)  
..... \$ 670.00

No international preliminary examination fee paid to USPTO (37 CFR 1.482)  
but international search fee paid to USPTO (37 CFR 1.445(a)(2))..... \$ 760.00

Neither international preliminary examination fee (37 CFR 1.482) nor  
international search fee (37 CFR 1.445(a)(2)) paid to USPTO..... \$ 970.00

International preliminary examination fee paid to USPTO (37 CFR 1.482)  
and all claims satisfied provisions of PCT Article 33(2)-(4)..... \$ 96.00

ENTER APPROPRIATE BASIC FEE AMOUNT = \$ 840.00

Surcharge of \$130.00 for furnishing the oath or declaration later than [ ] 20 [ ] 30  
months from the earliest claimed priority date (37 CFR 1.492(e)).

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE
Total claims	11 - 20 =	0	X \$ 18.00
Independent claims	2 - 3 =	0	X \$ 78.00
MULTIPLE DEPENDENT CLAIMS (if applicable)			+ \$260.00

TOTAL OF ABOVE CALCULATIONS = \$ 840.00

Reduction by 1/2 for filing by small entity, if applicable. Small Entity Statement  
must also be filed (Note 37 CFR 1.9, 1.27, 1.28).

SUBTOTAL = \$ 840.00

Processing fee of \$130.00 for furnishing the English translation later than [ ] 20 [ ] 30  
months from the earliest claimed priority date (37 CFR 1.492(f)).

TOTAL NATIONAL FEE = \$ 840.00

Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be  
accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property + \$ 40.00

TOTAL FEES ENCLOSED = \$ 880.00

Amount to be refunded  
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a. [X] A check in the amount of \$ 880.00 to cover the above fees is enclosed.

b. [ ] Please charge my Deposit Account No. \_\_\_\_\_ in the amount of \$ \_\_\_\_\_ to cover the above fees. A duplicate  
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c. [X] The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to  
Deposit Account No. 06-1382. A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a)  
or (b)) must be filed and granted to restore the application to pending status.

IN DUPLICATE

Signature

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## DESCRIPTION

### SKIN CONTACT GOODS

5

#### Technical Field

The present invention relates to a skin contact goods in contact with skin.

#### 10 Background Art

A sanitary goods such as disposable diaper and sanitary napkin being applied to skin has, for instance, an absorbing body for retaining fluid, surface material laminated onto one side of the absorbing body to be in direct contact with the skin and an impervious sheet laminated onto the other side of the absorbing body for preventing the fluid from leaking out of the absorbing body.

A synthetic fiber, non-woven fabric and the like are widely used as a base of the surface member of the sanitary goods. In recent years, characteristic such as permeability for immediately conducting excretions to the absorbing body, cleanliness and toughness against human movement are desired for the surface material. Non-woven fabric composed of polypropylene, polyester, polyethylene and the like is used as a material satisfying the above demand.

Similarly to the sanitary goods, tissue paper, wet tissue as well as make-up tools for putting on make-ups, specifically, puffs such as disposable puff and a powder puff, a make-up brush, sponge etc. are used as the skin contact goods in contact with the skin.

Since the skin contact goods are used in direct contact with or for rubbing the skin, a product having superior touch (texture) has been conventionally desired.

Especially, material such as polypropylene, polyethylene and polyester has bad touch (texture) and, furthermore, causes stuffiness on account of lack of moisture inhalation, which results in unpleasant feeling when they are applied to human body for a long time.

The object of the present invention is to provide a skin contact goods having good touch and moisture inhalation.

### Disclosure of the Invention

The present invention is a skin contact goods being used in contact with skin. The skin contact goods is characterized in having natural organic impalpable powder adhered at least on a side in direct contact with the skin.

5 The skin contact goods includes tissue paper, wet tissue, a mask and gauze etc. in addition to below-described sanitary goods and make-up tools.

The natural organic is, for instance, silk, collagen, cellulose, chitin, chitosan, wool, hemp, cotton, sponge powder, whey and the like. Any one of the natural organic or the combination thereof can be selectably used.

10 The natural organic impalpable powder can be obtained by, for instance, mechanically pulverizing the natural organic material to make into impalpable powder.

15 The natural organic impalpable powder can be adhered by dispersing the natural organic impalpable powder into aqueous resin such as aqueous macromolecule and resin emulsion, organic solvent such as alcohol and solvent such as water and by coating them. Incidentally, the aqueous resin or the solvent may be used alone or in combination.

20 The base to which the natural organic impalpable powder is adhered, i.e. the base composing the side of the skin contact goods in direct contact with the skin, may be, for example, fiber such as synthetic fiber and natural fiber, fabric base such as non-woven fabric, textiles and knits using the fibers, and synthetic resin film etc.

The synthetic resin may be, for instance, polypropylene, polyester, polyethylene and the like. The natural fiber may be, for instance, silk, cotton and the like.

25 The synthetic resin film may be, for instance, polyethylene film, polypropylene film, polyester film and the like.

Hydrophilic treatment, water repellant treatment, softening treatment, embossing, perforating may be applied to the base.

30 When the skin contact goods is a sanitary goods applied to the skin and has a surface material in direct contact with the skin and, as necessary, an absorbing body covered with the surface material, the surface material preferably includes a base having the natural organic impalpable powder adhered thereto.

35 The sanitary goods refers to articles applied to the skin for a predetermined time, which includes, for instance, disposable diaper, diaper liner, sanitary napkin and the like. Many of them have the absorbing body covered with the surface material.

The skin contact goods may also be a make-up tool used for make-ups.

The make-up tool includes, for instance, puff, sponge, make-up brush, face-mask and the like. The puff includes disposable puffs such as silk puff, cotton puff and rayon puff in addition to various make-up puffs for putting on  
5 make-up.

The natural organic impalpable powder preferably has an average particle size of less than  $30\mu\text{m}$ .

When the average particle size exceeds  $30\mu\text{m}$ , the natural organic impalpable powder can be hard to be adhered to the base and is likely to be felt  
10 rough.

In order to enhance the adhesion to the base, the natural organic impalpable powder preferably has an average particle size of less than  $10\mu\text{m}$ .

The lower limit of the natural organic impalpable powder is preferably more than  $0.1\mu\text{m}$ , more preferably more than  $1\mu\text{m}$ .

When the average particle size is less than  $1\mu\text{m}$ , the powder can be difficult to be handled. Furthermore, lots of work is necessary for pulverizing the natural organic material, thereby increasing production cost.  
15

The natural organic impalpable powder is preferably adhered by being processed by a treatment including the natural organic impalpable powder. The treatment is preferably consisted of the natural organic impalpable powder and at least one dispersion medium selected from the group consisting of water, organic solvent, resin emulsion and resin aqueous solution.  
20

Since the natural organic is dispersed in the treatment, the natural organic impalpable powder can be uniformly adhered by the processing using the treatment.  
25

The resin emulsion may be synthetic resin emulsion such as silicone type, polyurethane type, polyacryl type, fluorine type, polyvinyl alcohol type and carboxymethyl cellulose type, or, alternatively, natural resin emulsion.

The resin aqueous solution may be, for instance, synthetic resin aqueous solution including synthetic water-soluble macromolecule such as polyvinyl alcohol type and carboxymethyl cellulose type. Alternatively, natural resin aqueous solution including natural resin type collagen, gelatin, potassium alginate, natural gums and the like may also be used.  
30

Surface active agent may be added to the treatment as necessary to improve the dispersion of the natural organic impalpable powder. The surface active agent may be, for instance, ionic surface active agent of anion and cation, non-ionic surface active agent such as polyethylene oxide  
35

derivative and sucrose fatty ester.

Thickening agent may be added in the treatment to prevent sedimentation of the natural organic impalpable powder. The thickening agent may be, for instance, cellulose derivative such as methyl cellulose and hydroxyethyl cellulose, and natural macromolecule thickening agent such as various type of gum, pectin, soda alginate, dextrin, agar and gelatin.

The processing with the treatment may be conducted by coating the treatment by gravure coating method, spray method, padding method (impregnation, dipping) and the like and by drying thereafter.

Incidentally, additional processing such as embossing may be conducted after coating and drying the treatment.

Content ratio of the natural organic impalpable powder in the treatment is preferably 0.5 to 50wt%.

When the content ratio of the natural organic impalpable powder is less than 0.5wt%, good touch and sufficient moisture inhalation sometimes may not be obtained. When the content ratio exceeds 50wt%, the treatment is likely to get too thick to be uniform, in other words, cause mass of powder.

When the dispersion medium is either one of the resin emulsion or the resin aqueous solution, solid resin content in the treatment is preferably 0.5 to 20wt%.

Since the resin works as a binder for fixing the natural organic impalpable powder to the base, the natural organic impalpable powder can be firmly adhered to the base through the resin.

When the solid resin content is below 0.5wt%, sufficient adhesion of the natural organic impalpable powder to the base by the resin may not be obtained. When the solid resin content exceeds 20wt%, good touch and moisture inhalation by the natural organic impalpable powder may not be obtained.

According to another aspect of the present invention, the present invention is a skin contact goods used in contact with skin, including natural organic impalpable powder adhered at least on a side in direct contact with the skin by processing using a treatment. The skin contact goods is characterized in that the treatment includes the natural organic impalpable powder having an average particle size of less than 30 $\mu$ m and either one of resin emulsion or resin aqueous solution for dispersing the natural organic impalpable powder, content ratio of the natural organic impalpable powder in the treatment is 0.5 to 50wt% and solid resin content in the treatment is 0.5 to 20wt%.

The skin contact goods may preferably be a sanitary goods applied to the skin and the skin contact goods preferably has a surface material in direct contact with the skin, the surface material including a base having the natural organic impalpable powder adhered thereto.

5       The skin contact goods may also preferably be a make-up tool used for make-ups.

#### Brief Description of Drawings

10       Fig. 1 is a cross section showing first embodiment of the present invention; and

      Fig. 2 is a cross section showing second embodiment of the preset invention.

#### Best mode for Carrying out the Invention

15       Preferred embodiments of the present invention will be described below with reference to attached drawings.

##### [First Embodiment]

      Fig. 1 shows sanitary goods 1 as a skin contact goods according to first embodiment.

20       The sanitary goods 1 is, for example, a disposable diaper which is used by applying to skin. The sanitary goods 1 has a surface material 11 in direct contact with the skin, an absorbing body 12 for absorbing and retaining fluid and a impervious sheet 13 for preventing the fluid from leaking.

25       The absorbing body 12 is covered with the surface member 11 on a side thereof facing the skin and absorbs the fluid through the surface member 11.

      The surface member 11 has a base adhered with natural organic impalpable powders, which is obtained by processing the base with a treatment including the natural organic impalpable powders.

30       The treatment can be obtained by: adding the natural organic impalpable powders having average particle size of less than 30 $\mu$ m to an at least one dispersion medium selected from water, organic solvent, resin emulsion and resin aqueous solution so that the content of the natural organic impalpable powder is 0.5 to 50 wt%; stirring; and dispersing the natural  
35       organic impalpable powders. When the resin emulsion or the resin aqueous solution is used as the dispersion medium, the treatment is conditioned so that the solid resin content is 0.5 to 20wt%.

The treatment is coated to and dried on the base of surface material 11 for sanitary goods according to the present embodiment so that the natural organic impalpable powder is adhered.

[Second Embodiment]

5 Fig. 2 shows a disposable cotton puff 2 as a skin contact goods according to second embodiment.

The cotton puff 2 is a make-up tool used for make-up. The cotton puff 2 has an intermediate cotton 21 and a surface member 22 covering the intermediate cotton 21. The surface member 22 is directly touched to the  
10 skin.

The surface member 22 is produced by adhering the natural organic impalpable powder to the base made of cotton in the same manner as in the first embodiment. In other words, the surface member 22 of the present embodiment can be obtained by processing the base using the same treatment  
15 as the first embodiment.

Incidentally, skin contact goods having the surface member, i.e. the sanitary goods 1 and the cotton puff 2, is described in the aforesaid embodiments. However, the arrangement of the skin contact goods to which the present invention is applied is not restricted to a surface member covering  
20 the area to which the skin touches.

In other words, the present invention may be applied to, for instance, a make-up brush as a make-up tool. In this case, the natural organic material may be adhered by conducting the processing by the aforesaid treatment to brush-hair as skin-contacting part.

25 When the present invention is applied to a face-mask as a make-up tool, a face-mask having superior touch can be obtained by adhering the natural organic material to at least one side of a base composed of non-woven fabric etc. touching the skin by conducting the processing of the aforesaid treatment.

The natural organic material may be adhered by conducting the  
30 aforesaid processing to the non-woven fabric, synthetic resin film structuring the surface member of the sanitary napkin as the sanitary goods.

Further, the tissue paper and the wet tissue as a skin contact goods can be made by adhering the natural organic material to the base of fiber sheet such as paper.

35 [Experiment 1]

In the first embodiment, synthetic resin aqueous solution including polyvinyl alcohol [POVAL PVA-117 (trade name) manufactured by



KURARAY Co. Ltd.] dissolved in water was used as the dispersion medium and silk power having average particle size of  $5\mu\text{m}$  was used as the natural organic impalpable powder. The silk powder was mixed in the synthetic resin aqueous solution to be sufficiently dispersed, thereby obtaining the treatment of the present experiment.

The content ratio of respective component in the treatment is 10wt% of the silk powder, 85wt% of water and 5wt% of polyvinyl alcohol.

Polypropylene non-woven fabric was used as the base. The treatment was coated on the polypropylene non-woven fabric by a gravure processing machine so that treatment is coated by  $5\text{g/m}^2$  in Mezuke (Japanese weight unit showing weight per unit area). Subsequently, the polypropylene non-woven fabric was dried by a hot air drier at  $80^\circ\text{C}$  for one minute to obtain the surface material of the present experiment.

[Experiment 2]

The natural organic impalpable powder of the experiment 1 was changed to collagen powder (average particle size of  $4\mu\text{m}$ ). The treatment was made in the same manner as the experiment 1 and the surface material for sanitary goods of the present experiment was obtained using the treatment.

[Experiment 3]

The natural organic impalpable powder of the experiment 1 was changed to cellulose powder (average particle size of  $6\mu\text{m}$ ). The treatment was made in the same manner as the experiment 1 and the surface material for sanitary goods of the present experiment was obtained using the treatment.

[Experiment 4]

The natural organic impalpable powder of the experiment 1 was changed to chitin powder (average particle size of  $5\mu\text{m}$ ). The treatment was made in the same manner as the experiment 1 and the surface material for sanitary goods of the present experiment was obtained using the treatment.

[Experiment 5]

The natural organic impalpable powder of the experiment 1 was changed to chitosan powder (average particle size of  $5\mu\text{m}$ ). The treatment was made in the same manner as the experiment 1 and the surface material for sanitary goods of the present experiment was obtained using the treatment.

[Experiment 6]

Synthetic resin emulsion including CL COAT 5400 [(trade name) manufactured by KYOEISHA CHEMICAL Co. Ltd.] dissolved in water was used as the dispersion medium of the experiment 1. The treatment was made

in the same manner as in the experiment 1 to obtain the surface member for sanitary goods.

The content ratio of respective component in the treatment was 10wt% of silk powder, 60wt% of water and 30wt% of CL COAT 5400 (trade name).

- 5 Since solid resin content of the CL COAT 5400 was approximately 20wt%, the solid resin content in the treatment was approximately 6%.

[Experiment 7]

- 10 The natural organic impalpable powder of the experiment 6 was changed to wool powder (average particle size of 5 $\mu$ m). The treatment was made in the same manner as the experiment 6 and the surface material for the sanitary goods of the present experiment was obtained using the treatment.

[Experiment 8]

- 15 The natural organic impalpable powder of the experiment 6 was changed to hemp powder (average particle size of 5 $\mu$ m). The treatment was made in the same manner as the experiment 6 and the surface material for the skin sanitary goods of the present experiment was obtained using the treatment.

[Experiment 9]

- 20 The natural organic impalpable powder of the experiment 6 was changed to cotton powder (average particle size of 4 $\mu$ m). The treatment was made in the same manner as the experiment 6 and the surface material for the sanitary goods of the present experiment was obtained using the treatment.

[Experiment 10]

- 25 The dispersion medium of the experiment 1 was changed to water. Polyethylene glycol ether as a surface active agent was added to the water to produce the treatment in the same manner as in the experiment 1. The surface material for the sanitary goods of the present experiment was obtained using the treatment.

- 30 The content ratio of respective components in the treatment was 10wt% of silk powder, 89.5wt% of water and 0.5wt% of polyethylene glycol ether.

[Comparison 1]

- 35 The natural organic impalpable powder of the experiment 1 was changed to collagen powder (average particle size 35 $\mu$ m). The treatment was made in the same manner as in the experiment 1. The surface material for the sanitary goods of the present comparison was obtained using the treatment.

[Comparison 2]

The content ratio of respective components of the treatment of the experiment 1 was set as 0.1wt% of silk powder, 99.4wt% of water and 0.5wt% of polyvinyl alcohol. The treatment was made in the same manner as in the experiment 1. The surface material for the sanitary goods of the present comparison was obtained using the treatment.

[Comparison 3]

The content ratio of respective components of the treatment of the experiment 1 was set as 55wt% of silk powder, 44.5wt% of water and 0.5wt% of polyvinyl alcohol. The treatment was made in the same manner as in the experiment 1. The surface material for the sanitary goods of the present comparison was obtained using the treatment.

[Comparison 4]

The polyethylene non-woven fabric of the experiment 1 was used unprocessed without conducting processing by the treatment according to experiment 1.

The moisture inhalation and touch were evaluated for respective surface material for sanitary goods obtained in the experiments 1 to 10 and comparisons 1 to 4. The results are shown in Table 1 and 2.

The moisture inhalation was evaluated by measuring weight change of a sample which had reached to equilibrium at 23°C, 30%RH before being exposed in an atmosphere of 30°C, 80%RH for four hours with one side (powder-processed surface) upward.

The touch was evaluated by sensory test by ten persons. The touch of the surface material of the comparison 4 was set as standard (3 points), and the points were marked as: 5; superior touch, 4; good touch, 3; ordinary touch, 2; inferior touch, and 1; bad touch. Incidentally, the figures of Table 1 and 2 show average of the ten persons.

Table 1

	Moisture Inhalation (g/m <sup>2</sup> )	Touch
Experiment 1	1.5	4.8
Experiment 2	1.3	4.6
Experiment 3	1.4	4.8
Experiment 4	1.4	4.5
Experiment 5	1.3	4.5
Experiment 6	1.1	4.7
Experiment 7	1.3	4.6
Experiment 8	1.2	4.6
Experiment 9	1.1	4.8
Experiment 10	0.9	4.9

Table 2

	Moisture Inhalation (g/m <sup>2</sup> )	Touch
Comparison 1	1.2	2.8
Comparison 2	0.2	3.0
Comparison 4	0.1	3.0

5 From the Table 1 and 2, it can be observed that the surface materials for sanitary goods of embodiments 1 to 10 were superior to the surface material of the comparison 4 and good and dry touch characteristic of natural material could be obtained, since the natural organic impalpable powder was adhered thereon.

10 On the other hand, since the average particle size of the natural organic impalpable powder of the surface material for sanitary goods according to comparison 1 was 35 $\mu$ m, which is more than 30 $\mu$ m, the touch was inferior on account of rough feeling.

15 Since the content ratio of the natural organic impalpable powder in the treatment was less than 0.5wt% and less natural organic impalpable powder was adhered to the base, moisture inhalation and touch of the surface material for sanitary goods according to comparison 2 could not be sufficiently improved.

Since the content ratio of the natural organic impalpable powder in the treatment for the surface material for sanitary goods of the comparison 3 was more than 50wt%, viscosity of the treatment was increased in manufacturing, so that the treatment gets non-uniform, i.e. generates powder mass and the treatment usable for the processing of the base material could not be obtained.

Since the surface material for the sanitary goods according to comparison 4 was unprocessed, it can be observed that the moisture inhalation and the touch were deteriorated.

[Experiment 11]

In the second embodiment, synthetic resin aqueous solution including polyvinyl alcohol [POVAL PVA-117 (trade name) manufactured by KURARAY Co. Ltd.] dissolved in water was used as the dispersion medium and sponge power having average particle size of 5 $\mu$ m was used as the natural organic impalpable powder. The sponge powder was mixed in the synthetic resin aqueous solution to be sufficiently dispersed, thereby obtaining the treatment of the present experiment.

The content ratio of respective component in the treatment was 10wt% of the sponge powder, 85wt% of water and 5wt% of polyvinyl alcohol.

Cotton non-woven fabric was used as the base of the surface material. The treatment was coated on the cotton non-woven fabric by a spray processing machine so that treatment is coated by 30g/m<sup>2</sup> in Mezuke (Japanese weight unit showing weight per unit area). Subsequently, the cotton non-woven fabric was dried by a hot air drier at 150°C for one minute to obtain the surface material for cotton puff of the present experiment.

[Comparison 5]

The cotton non-woven fabric of the experiment 11 was used unprocessed without conducting processing by the treatment of the experiment 11.

Moisture inhalation, touch and water absorption were evaluated for the respective surface material for the cotton puff obtained in the aforesaid experiment 11 and the comparison 5. The results are shown in Table 3.

The moisture inhalation and the touch were evaluated in the same manner as the aforesaid experiments 1 to 10 and the comparisons 1 to 4.

The water absorption was evaluated by dropping distilled water onto the surface of the surface material for cotton using a micropipet and measuring the amount of the dropped distilled water before the water leaked out of the back side of the surface material to measure the amount of absorbed water.

Table 3

	Moisture Inhalation (g/m <sup>2</sup> )	Touch	Absorbed water (μl)
Experiment 11	6.8	4.8	540
Comparison 5	8.2	4.2	124

According to Table 3, it can be observed that good moisture inhalation and good and dry touch characteristic of natural material as well as superior water absorption can be obtained by the surface material for cotton puff of the experiment 11, since the sponge powder as natural organic impalpable powder was adhered thereon.

Since the cotton puff is often used with liquid cosmetics and great water absorption is required, surface material suitable for the cotton puff can be obtained by adhering the sponge powder.

On the other hand, though the surface material for cotton puff according to the comparison 5 was superior in moisture inhalation and touch on account of being made of natural material of cotton non-woven fabric, the water absorption required as the surface material of the cotton puff could not be satisfied since it was unprocessed.

#### Industrial Availability

As described above, the skin contact goods according to the present invention is suited for sanitary goods such as disposable diaper and sanitary napkin, and make-up tool such as make-up puff and make-up brush.

## Claims

1. A skin contact goods used in contact with skin, comprising natural organic impalpable powder adhered at least on a side in direct contact with the skin.  
5
2. The skin contact goods according to Claim 1, wherein the skin contact goods is a sanitary goods applied to the skin, the skin contact goods comprising a surface material in direct contact with the skin, the surface material including a base having the natural organic impalpable powder adhered thereto.  
10
3. The skin contact goods according to Claim 1, wherein the skin contact goods is a make-up tool used for make-ups.  
15
4. The skin contact goods according to Claim 1, wherein the natural organic impalpable powder has an average particle size of less than 30 $\mu$ m.
5. The skin contact goods according to Claim 1, wherein the natural organic impalpable powder has an average particle size of less than 10 $\mu$ m.  
20
6. The skin contact goods according to Claim 1, wherein the natural organic impalpable powder is adhered by being processed by a treatment including the natural organic impalpable powder, the treatment is consisted of the natural organic impalpable powder and at least one dispersion medium selected from the group consisting of water, organic solvent, resin emulsion and resin aqueous solution.  
25
7. The skin contact goods according to Claim 6, wherein content ratio of the natural organic impalpable powder in the treatment is 0.5 to 50wt%.  
30
8. The skin contact goods according to Claim 6, wherein the dispersion medium is either one of the resin emulsion or the resin aqueous solution; and wherein solid resin content in the treatment is 0.5 to 20wt%.  
35
9. A skin contact goods used in contact with skin, comprising natural organic impalpable powder adhered at least on a side in direct contact with the

wherein the treatment includes the natural organic impalpable powder having an average particle size of less than 30 $\mu$ m and either one of resin emulsion or resin aqueous solution for dispersing the natural organic

wherein content ratio of the natural organic impalpable powder in the treatment is 0.5 to 50wt%; and

10 10. The skin contact goods according to Claim 9, wherein the skin contact goods is a sanitary goods applied to the skin; and wherein the skin contact goods has a surface material in direct contact with the skin, the surface material including a base having the natural organic impalpable powder adhered thereto.

15 11. The skin contact goods according to Claim 9, wherein the skin contact  
goods is a make-up tool used for make-ups.



## Abstract

Natural organic impalpable powder is adhered to at least on a side in direct contact with the skin of a skin contact goods applied to skin. When the skin contact goods is, for instance, a sanitary goods having a surface material directly applied to the skin and an absorbing body covered with the surface material, the natural organic impalpable powder having an average particle size of less than  $30\mu\text{m}$  is adhered by processing base of the surface member with a treatment. The treatment includes the natural organic impalpable powder and at least one of dispersion medium selected from the group consisting of water, organic solvent, resin emulsion and resin aqueous solution. By the above arrangement, moisture inhalation and touch of the surface material in direct contact with the skin can be improved.

1/1

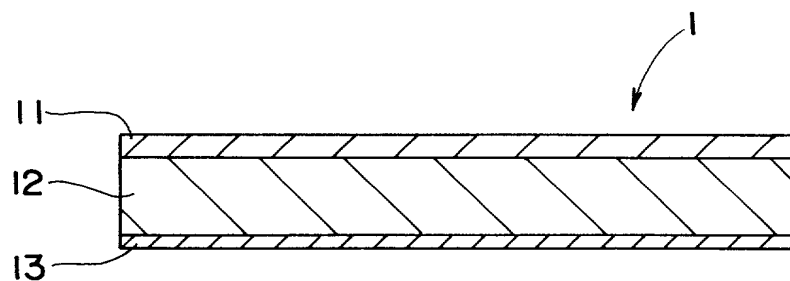


FIG. 1

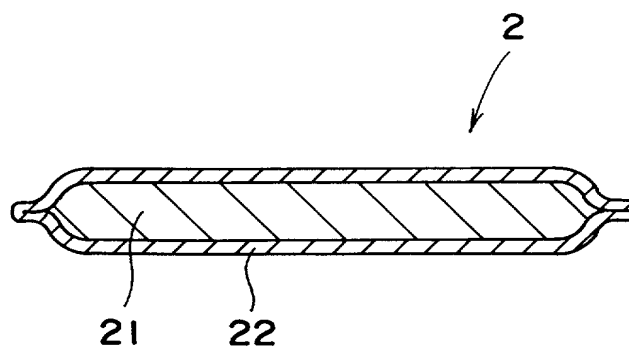


FIG. 2

## Declaration and Power of Attorney For Patent Application

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name. I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

SKIN CONTACT GOODS

the specification of which (check one)

☒ is attached hereto.

☐ was filed on \_\_\_\_\_ as Application Serial No. \_\_\_\_\_  
and was amended on \_\_\_\_\_ (if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above, to the best of my ability. I acknowledge the duty to disclose information which is material to the examination of this application in accordance with 37 C.F.R. 1.56(a) and 35 U.S.C. 102 and 103. I hereby claim foreign priority benefits under 35 U.S.C. 119/365 of any foreign application(s) for patent or inventor's certificate filed by me or my assignee disclosing the subject matter claimed in this application and having a filing date (1) before that of the application on which priority is claimed, or (2) if no priority claimed, before the filing date of this application:

Number	Prior foreign application(s)			Priority claimed	
	Country	Day/Month/Year Filed	Yes	No	
[ 9-6391 ]	[ Japan ]	[ 17 / 01 / 1997 ]	[ X ]	[ ]	
[ 9-342780 ]	[ Japan ]	[ 12 / 12 / 1997 ]	[ X ]	[ ]	
[ ]	[ ]	[ ]	[ ]	[ ]	
[ ]	[ ]	[ ]	[ ]	[ ]	
[ ]	[ ]	[ ]	[ ]	[ ]	
[ ]	[ ]	[ ]	[ ]	[ ]	
[ ]	[ ]	[ ]	[ ]	[ ]	

I hereby claim the benefit under 35 U.S.C. 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of 37 C.F.R. 1.56 (a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

Application Serial No.	Filing Date	Status(patented, pending, abandoned)
Application Serial No.	Filing Date	Status(patented, pending, abandoned)
Application Serial No.	Filing Date	Status(patented, pending, abandoned)
Application Serial No.	Filing Date	Status(patented, pending, abandoned)

I hereby declare that all statement made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

And I hereby appoint Flynn, Thiel, Boutell & Tanis, P.C., 2026 Rambling Road, Kalamazoo, Michigan 49008-1699, telephone number 616-381-1156 (to whom all communications are to be directed), and the below named partners thereof (of the same address) individually and collectively my attorneys to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith and with the resulting patent, and I hereby authorize them to act and rely on instructions from and communicate directly with the person/assignee/attorney/ firm/organization who/which first sends/sent this case to them and by whom/which I hereby declare that I have consented after full disclosure to be represented unless/until I instruct Flynn, Thiel, Boutell & Tanis, P.C. in writing to the contrary.



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